

## Claims

1. A device for detecting the condition of a tire (2) on a wheel (3) of a vehicle  
5 (1), having at least one sensor (4) which ascertains condition data of the tire (2)  
and outputs them to a receiving unit of the vehicle (1), characterized in that at least  
one sensor (4) in the vehicle is provided, which ascertains values representing a  
distance (D1, D1', D2, D3, D3') to at least one target (5, 6, 7) affixed to the tire (2)  
and outputs them to an evaluation device (8), which from that ascertains condition  
10 data of the tire (2).

2. The device as defined by claim 1, characterized in that the at least one  
sensor (4) ascertains speed values of the at least one target (5, 6).

15 3. The device as defined by one of claims 1 through 3, characterized in that  
from the distance values (D1, D1', D2, D3, D3') and/or speed values, the  
evaluation unit (8) ascertains variables which are compared with rated values  
stored in a memory unit.

20 4. The device as defined by one of claims 1 through 3, characterized in that  
the evaluation unit ascertains amplitudes (AMP) of the distance, the maximums of  
which amplitudes are compared with rated values stored in memory.

25 5. The device as defined by one of claims 1 through 4, characterized in that  
the at least one sensor (4) is located in static fashion on the vehicle chassis (15).

6. The device as defined by one of claims 1 through 4, characterized in that  
the at least one sensor (4) is located on a component, in particular a strut (14),  
that is connected dynamically to the vehicle chassis (15).

7. The device as defined by one of claims 1 through 6, characterized in that a first target (5) is affixed to one side of the tire (2).

5        8. The device as defined by one of claims 1 through 7, characterized in that a further target is a rotating reference measurement target (6) on the wheel (3).

9. The device as defined by one of claims 1 through 8, characterized in that a further target is a travel surface (7), and the height of the sensor (4) above the  
10 travel surface (7) is ascertained as the distance (D3, D3').

10. The device as defined by one of claims 1 through 9, characterized in that the sensor (4) is embodied as an electromagnetic sensor, in particular a radar sensor, or as an optical sensor, in particular a lidar sensor or a picture- taking  
15 device, or as an acoustic sensor, in particular an ultrasound sensor.

11. The device as defined by one of claims 1 through 10, characterized in that the condition data represent at least a selection among the conditions "tire pressure condition", "tire load condition", "rod", "tire tread condition", "summer  
20 tire/winter tire condition", and "tire imbalance condition".

12. The device as defined by one of claims 1 through 11, characterized in that the condition data represent a rim condition.

25        13. The device as defined by one of claims 1 through 12, characterized in that the evaluation device (8) makes condition data of the tire (2) available to a network (9) having control/regulating systems (10, 11) connected to it and/or to at least one display device (12) of the vehicle (1).

14. The device as defined by one of claims 1 through 13, characterized in that the vehicle is embodied as a motor vehicle (1).

15. The device as defined by one of claims 1 through 13, characterized in that  
5 the vehicle is embodied as an aircraft.